Guidelines for Dayneutral Strawberry Production on Massachusetts' Cranberry Uplands

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Dayneutral Strawberry Production Summary: Dayneutral strawberries differ from traditional June-bearing types in that they flower and fruit continuously when temperatures are moderate because they are insensitive to day length. Daylength normally controls flower bud initiation in strawberries and many other flowering plants. In northern climates, June-bearers form flower buds during the short days of fall, and these buds complete their development and bloom the following spring. Dayneutral types form flower buds under any day length and continue to grow so long as temperatures are suitable.

While cultivars differ a little in their ideal climate requirements, most dayneutrals will grow well in the temperature range between 45˚F and 85˚F. Temperatures lower or higher than these limits will cause the plants to shut down and stop growing. In our region, the heat of the summer can be a limiting factor in dayneutral strawberry production. Overhead irrigation can be used to cool down the fields during high heat periods. White on black embossed plastic mulch will also help reflect some of the summer heat (as compared to traditional black plastic).

Yields of dayneutral strawberries are documented to be as high as June-bearing varieties, at 10,000 to 20,000 lbs/acre of marketable fruit. Total yields are higher, but some fruit may not be marketable due to small size or damage from insect pests, fruit rots or birds. Dayneutral varieties can be grown as annual plantings (replanted anew each year), or as perennial plantings (mulched and kept over for one or more winters). Perennial beds will have a tendency to concentrate fruit production in June, a time when market price is lower.

Dayneutral Strawberries at a Glance:

- Dayneutrals produce flowers continuously while temperatures are below 85˚F
- Dayneutrals perform best when planted

at high densities (8 - 10" spacing)

- on double rows
- on raised beds

with white-on-black plastic mulch and trickle irrigation

- Dayneutrals yield approximately 10,000 –20,000 lbs/acre of marketable fruit
- Flowers are removed for 6 weeks after planting to allow plants to achieve sufficient size for fruiting. Failure to remove flowers result in smaller plants and lower yields
- Runners must be removed throughout the season
- Best markets include restaurants, farmers' markets, roadside stands

Past experience with dayneutral strawberries has shown that growers must market this fruit as something unique; distinct both from local June-bearing varieties and especially from fruit shipped in from afar. The excellent berry quality, especially of some of the newer varieties of dayneutral berries, are highly desirable to buyers. Prices have been shown to double (at least) over the June levels. High-end marketing outlets like restaurants, roadside stands, and farmers' markets have been good for this crop. Pick-you-own and wholesale markets are least desirable.

The labor commitment for growing dayneutrals is significant. Labor is needed for planting, picking flowers/runners, weeding between mulched rows, and harvesting. Growers who fail to plan for the labor demands of the crop will not succeed with dayneutral strawberries. Growers who plan well can realize $10,000 per acre profit or more.

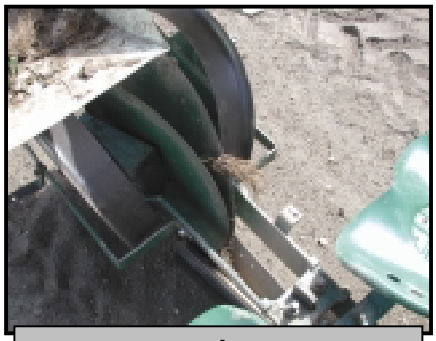
Dayneutral Strawberry Production Steps:

Year Prior to Plant Establishment:

- ☑ Plow area to be planted and incorporate lime, organic matter and other amendments according to soil test results
  - o pH should be 5.5 – 6.5 and soil organic matter should be at least 3%
  - o follow soil test recommendations for phosphorus, potassium, magnesium and calcium
- ☑ Plant appropriate cover crop such as winter rye, oats, or a legume to help suppress weeds and add organic matter
- ☑ Design and install mainlines for a dual irrigation system (overhead and trickle)
- ☑ Order plant material early to avoid missing out on popular varieties
  - o 'Seascape', 'Everest', 'Diamante', and 'Tristar' are among the recommended varieties of dayneutral strawberries

Establishment Year:

Dormant Nursery Plants

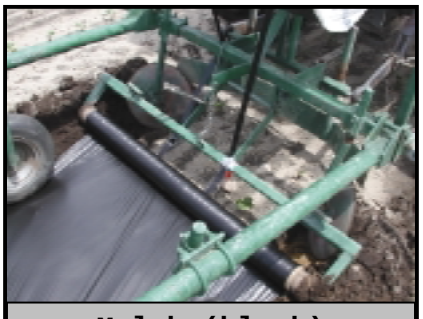


Strawberry Transplanter

Newly Set Transplants

Pre-Plant Activities

- ☑ Loosen soil prior to planting by plowing and harrowing, or rotovating
- ☑ Add fertilizer, organic matter or more lime if needed
- ☑ Form raised beds if desired
- ☑ Plant double rows of strawberry transplants at 8" – 10" between plants and 12" between rows. Beds should be spaced 3' – 5' on center depending on wheel spacing on the tractor that will be used for various maintenance operations in the field.



Mulch (black) applied over the row

Plants grow through holes in mulch (white)

Ripe fruit in August

Plant Maintenance Activities:

- ☑ Once plants have begun to grow, apply white-on-black plastic mulch over the row and cut or burn holes for the plants to grow through.
    - Drip tape (one line for each row of plants) will be applied under the plastic in the same operation (be careful not to damage these lines when making openings for the plants to grow through.
- ☑ Irrigate as needed to maintain good plant growth. If using tensiometers, readings should be maintained at less than 50 centibars for loamy soils and at less than 20 centibars for sandy soils.
    - Once plants have grown enough to show above the plastic mulch, begin to provide weekly fertilization through drip lines with nitrogen at 5-6 lbs and potassium at 2 lbs per acre. Additional nutrients should be supplied as determined by periodic leaf tissue analysis.
- ☑ Remove flower trusses weekly for the first 6 weeks to allow plants to achieve larger crowns and root systems. Also remove runners at this time.
- ☑ Cool fields with overhead irrigation during hot periods in mid to late summer when temperatures exceed 85˚F for long periods.

Pest Management Activities:

Consult *New England Small Fruit Pest Management Guide* for recommended materials and rates.

- ☑ Control weed growth between rows of plastic mulch by mechanical cultivation and hand weeding, or with the use of appropriate herbicides.
- ☑ Control insect pests as determined by scouting fields weekly
    - E.g., Tarnished Plant Bug, Two-Spotted Spider Mites, Flea Beetles
- ☑ Control fruit rots especially if field conditions are frequently wet from rain or overhead irrigation.
    - E.g., Gray Mold, Leather Rot (most important to protect blossom tissue from primary infections)

Harvesting Activities:

- ☑ Harvest twice a week directly into pint containers and cool rapidly to 35˚F to maintain highest fruit quality.
    - Early morning is the best time to harvest; fruit has not yet accumulated a lot of field heat
- ☑ Deliver to markets the same day as harvest in refrigerated trucks to maintain highest fruit quality.

Resource Materials:

- New England Small Fruit Pest Management Guide, UMass Extension Bookstore. 413-545-2717. $8.50 (Online at www.umass.edu/Fruitadvisor)
- Small Fruit Nursery Selection Guide (to find sources for plant material), Available from Cornell University Resource Center at 607-255-2080. $3.00 (Online at **www.hort.cornell.edu/nursery**)
- Dayneutral Strawberry Production. Available from Cornell University Resource Center at 607-255-2080. $2.90. Not available online.